

CLAIMS

1. A solid-state laser comprising a laser cavity which introduces pumping light into a gain crystal via a focusing lens and a dichroic concave mirror, wherein the focusing lens is tilted with respect to the optical axis of the pumping light so that a focusing point of the pumping light in a sagittal plane and a focusing point of the pumping light in a tangential plane in the gain crystal almost coincide with focusing points in the respective planes in the gain crystal in a cavity mode.

2. The solid-state laser according to claim 1, wherein the pumping light incident plane of the gain crystal is polished to have the Brewster angle or to be deviation from the right angle with respect to the optical axis of the cavity mode.

3. The solid-state laser according to claim 1, wherein the pumping light incident plane of the gain crystal is polished to have the right angle with respect to the optical axis of the cavity mode.

4. The solid-state laser according to claim 1, wherein the tilting angle of the focusing lens is changed within a certain range around the predetermined tilting angle at which the focusing points of the pumping light in the sagittal and tangential planes in

the gain crystal almost coincide with the focusing points in the respective planes in the gain crystal in the cavity mode.

5 5. The solid-state laser according to claim 2,
wherein the tilting angle of the focusing lens is
changed within a certain range around the predetermined
tilting angle at which the focusing points of the
pumping light in the sagittal and tangential planes in
10 the gain crystal almost coincide with the focusing
points in the respective planes in the gain crystal in
the cavity mode.

15 6. The solid-state laser according to claim 3,
wherein the tilting angle of the focusing lens is
changed within a certain range around the predetermined
tilting angle at which the focusing points of the
pumping light in the sagittal and tangential planes in
the gain crystal almost coincide with the focusing
20 points in the respective planes in the gain crystal in
the cavity mode.

25 7. The solid-state laser according to claim 1,
further comprising a plate for beam axis adjustment to
be disposed between the pumping light source and the
focusing lens.

8. A solid-state laser comprising:

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(a) a laser cavity having a gain crystal and two end mirrors;

(b) a pumping light source for supplying pumping light to be led to the gain crystal;

5 (c) a dichroic concave mirror for introducing the pumping light to the gain crystal and constructing the laser cavity or deriving outgoing light; and

(d) a lens for focusing the pumping light on the inside of the gain crystal in the laser cavity,

10 wherein the focusing lens is tilted with respect to the optical axis of the pumping light so that the focusing point of the pumping light in a sagittal plane and that in a tangential plane in the gain crystal almost coincide with the focusing points in the
15 respective planes in the gain crystal in the cavity mode.

9. The solid-state laser according to claim 8,
20 wherein the pumping light incident plane of the gain crystal is polished to have the Brewster angle or to be deviated from the right angle with respect to the optical axis of the cavity mode.

10. The solid-state laser according to claim 8,
25 wherein the pumping light incident plane of the gain crystal is polished to have the right angle with respect to the optical axis of the cavity mode.

11. The solid-state laser according to claim 8,
wherein the tilting angle of the focusing lens is
changed within a certain range around the predetermined
tilting angle at which the focusing points of the
5 pumping light in the sagittal and tangential planes in
the gain crystal almost coincide with the focusing
points in the respective planes in the gain crystal in
the cavity mode.

10 12. The solid-state laser according to claim 10,
wherein the tilting angle of the focusing lens is
changed within a certain range around the predetermined
tilting angle at which the focusing points of the
pumping light in the sagittal and tangential planes in
15 the gain crystal almost coincide with the focusing
points in the respective planes in the gain crystal in
the cavity mode.

20 13. The solid-state laser according to claim 9,
wherein the tilting angle of the focusing lens is
changed within a certain range around the predetermined
tilting angle at which the focusing points of the
pumping light in the sagittal and tangential planes in
the gain crystal almost coincide with the focusing
25 points in the respective planes in the gain crystal in
the cavity mode.

14. The solid-state laser according to claim 8,

further comprising a plate for beam axis adjustment to be disposed between the pumping light source and the focusing lens.

5 15. The solid-state laser according to claim 8,
wherein the laser cavity comprises a gain crystal whose
pumping light incident plane is polished to be normal
to the optical axis of the cavity mode, a concave
mirror, and a Littrow prism, and the pumping light
10 incident plane of the gain crystal and the plane
opposite to a light incident plane of the Littrow prism
serve as end mirrors.

15 16. The solid-state laser according to claim 8,
wherein the laser cavity comprises a dichroic concave
mirror, a gain crystal, a concave mirror, and an end
mirror, the pumping light incident plane of the gain
crystal is polished to have the Brewster angle, and the
pumping light enters the gain crystal via the dichroic
20 concave mirror.